

Marshall Star, November 14, 2012 Edition

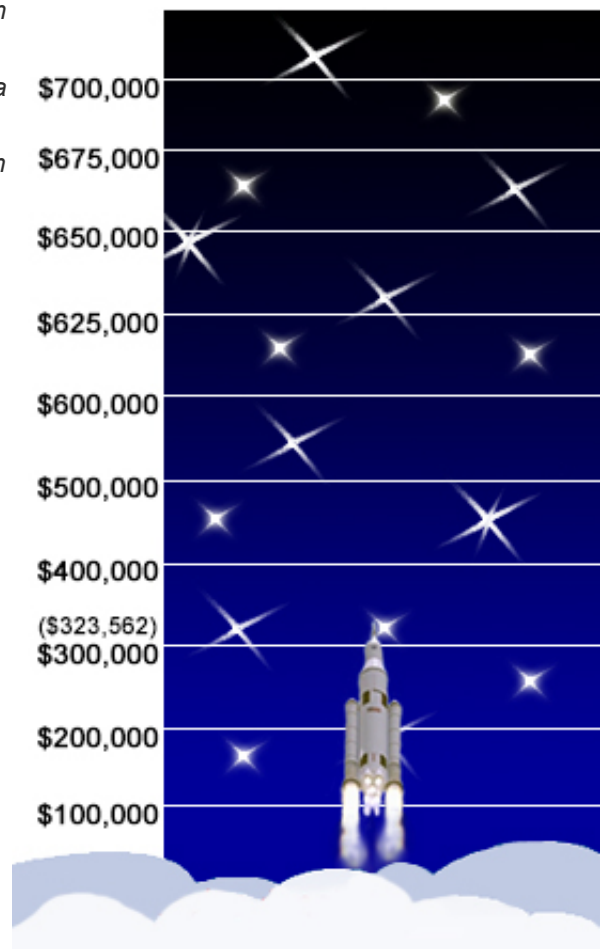
MARSHALL STAR

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Only Four More Weeks to Donate to CFC!

The Marshall Space Flight Center's 2012 Combined Federal Campaign runs through Dec. 15. So far, Marshall's workforce has contributed \$323,562 toward the center's \$700,000 goal. To donate, or to browse a comprehensive list of qualified charitable organizations, visit [here](#). Contractor team members also may make a one-time donation through their CFC organization leads or assigned monitors. For a complete list of organization leads, visit the CFC ExplorNet [page](#).



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Marshall's Dexter Strong: 'CFC Volunteering, Giving Worth Every Minute and Penny'

By Megan Davidson



Dexter Strong, an equipment specialist in the Propulsion Detailed Design Branch, part of Marshall's Engineering Directorate, is an avid supporter of the center's annual Combined Federal Campaign. (NASA/MSFC)

Dexter Strong, a 31-year veteran of the Marshall Space Flight Center, is passionate about his job as an equipment specialist in the Engineering Directorate's Propulsion Detailed Design Branch. Something else he's passionate about? Helping others in the community through the center's annual goodwill drive, the Combined Federal Campaign.

For more than 10 years, Strong has volunteered his time at the [Special Olympics](#), part of the CFC's Community Service Days. The event provides year-round sports training and athletic competition in a variety of Olympic-type sports for children and adults with intellectual disabilities. The event is close to Strong's heart, as one of his family members has special needs.

"Volunteering each year at the Special Olympics has allowed me to stay connected to the people I grew up with who were friends with my brother, who has Down syndrome," said Strong. "Being involved in the CFC Community Service Days has allowed me to see firsthand how volunteering and donations can positively impact these worthy organizations."

Along with volunteering, Strong allocates his annual CFC donations to another organization, the [Harris Home for Children](#). The local nonprofit provides full-time foster care for neglected and dependent adolescent males and females. "Growing up, some of my classmates lived at the Harris Home," said Strong. "I realized how much these kids were just like me, except that I was blessed to have a mother and father, and a home.

"So as a father, who has worked with my wife to provide a safe, loving home for my kids, the opportunity to contribute to the Harris Home was my first choice.

"I am an avid supporter of the Combined Federal Campaign because of my faith, and I believe that faith without works is dead," he added. "Talking about what should be done is not enough for me. If I have the ability to help someone in need, whether through monetary means or volunteering, I'm going to do it. To those much is given, much is expected. I would encourage everyone to get involved -- it's worth every minute and penny."



The Marshall Center's CFC goal this year is \$700,000. The CFC campaign runs through Dec. 15. To make a CFC donation to the Special Olympics, Harris Home for Children or other charitable organizations, visit [here](#).

The Marshall Center's CFC effort is part of the Tennessee Valley Combined Federal Campaign -- a joint effort that also includes the Army's Aviation and Missile Command and other federal agencies at Redstone Arsenal and in surrounding Alabama and Tennessee counties.

Davidson, an Analytical Services Inc. employee, supports the Office of Strategic Analysis & Communications.

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Researchers at Marshall Developing New Technique to Protect Astronauts from Space Radiation

By Shannon Ridinger



The complexities of traveling to and working in space present challenges to astronauts that NASA scientists and engineers have been working on since Neil Armstrong and Buzz Aldrin first stepped on the moon more than 43 years ago.

Image left: At right, Mark Christl, lead on the Advanced Neutron Spectrometer Project at the Marshall Center, demonstrates the spectrometer to representatives from the Johnson Space Center and Marshall. From left are Nasser Barghouty from Marshall, Edward Semones from Johnson, Chris Cianciola from Marshall, and Catherine McLeod and Bobbie Swan from Johnson. (NASA/MSFC/Emmett Given)

One of the challenges facing humans when they go outside Earth's protective atmosphere and magnetic field is space radiation. Sending astronauts farther into our solar system than ever before will require advanced instruments designed for monitoring and detecting radiation in space vehicles and habitats.

NASA is tackling this problem with a renewed focus on understanding radiation in space environments. The Advanced Neutron Spectrometer, or ANS, is an instrument designed to do just this. By monitoring neutrons, the team aims to build a new tool to protect astronauts as they explore new destinations.

"Measuring neutrons in a space environment will keep astronauts safer because it will give mission managers on Earth invaluable information about the amount of radiation astronauts are being exposed to," said Mark Christl, the ANS project lead at the Marshall Space Flight Center. "The ANS can be used to detect the levels of radiation in the spacecraft or habitat so that astronauts can employ techniques to minimize their exposure."

Neutrons are difficult to detect because they are electrically neutral particles and pass through most detector systems without being noticed. The ANS uses a new instrument design that can significantly improve the reliability of identifying neutrons in the mixed radiation field found in deep space. This instrument design uses the gate and capture technique that slows down the neutrons and then "captures" them in an isotope of lithium. The ANS uses special glass fibers loaded with lithium to absorb the slowed neutrons and produce a small flash of light unique to the neutron capture process. The ANS uses custom electronics to recognize and trigger on the distinct neutron capture signal, which is then processed and analyzed to determine the radiation levels.

Scientists and engineers at the Marshall Center have been developing a prototype for the ANS instrument in close collaboration with the Johnson Space Center and other NASA centers, and recently shared their work with the RadWorks team from Johnson and Langley Research Center. Christl and his team at Marshall developed the prototype instrument in only 11 months. They used radioactive sources and exposures to high-energy protons at the Indiana University Cyclotron Facility to evaluate the performance of the ANS.

"Our work thus far has been very promising," said Christl. "By working closely with JSC and other NASA centers, we've been able to make great strides on some key radiation protection issues that include the ANS prototype. Our goal is to continue this work to improve the instrument performance and our radiation monitoring capabilities for our astronauts, and meet the future needs of exploring new destinations."

The ANS is being developed by RadWorks, an Advanced Exploration Systems, or AES, project to address radiation detection, monitoring and protection that will be needed for manned exploration beyond low Earth orbit. RadWorks is a cross-agency team, led by the Johnson Space Center, addressing several specific radiation-related issues, including the development of ANS.

For more information on the ANS project and RadWorks, contact Christl at mark.christl@nasa.gov.

Ridinger is a public affairs officer in the Office of Strategic Analysis & Communications.

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New Redstone Railhead Enhances NASA, Army Transportation Capabilities

By Rick Smith

When a NASA transportation team recently unloaded a 12,000-pound piece of space shuttle hardware at the new [Redstone Arsenal](#) "railhead" -- the termination point of the rail transportation line -- it was a case of business as usual: efficient, safe transport of hardware to the Marshall Space Flight Center.

Image right: A rail car carrying the aft skirt of a space shuttle solid rocket booster arrives at the Redstone Arsenal railhead near the Visitors Center. (Photo courtesy/Robert Rutherford)

But they also were reviving a mode of transportation once integral to Redstone for more than half a century -- and now more crucial than ever to the business needs of all the arsenal's government tenants.

The new railhead, west of Rideout Road near the Redstone Visitors Center, was designed by Norfolk Southern Railway Co. of Atlanta. The construction firm Hinkle Contracting Company LLC, headquartered in Paris, Ky., laid the new track and built the new railhead and loading pad. The firm replaced 80 percent of the old rail ties and moved the entire line south, keeping the railhead parallel with Interstate 565 but extending it to terminate on arsenal property.

The project, a joint venture between NASA and the U.S. Army Garrison at Redstone, was overseen by the Garrison as part of the City of Huntsville's ["Redstone Gateway"](#) project, a 468-acre development effort immediately north of the arsenal boundary, set to include some 4.6 million square feet of office, retail and commercial properties as work continues over the next decade or more.

The Oct. 23 rail delivery of the 6-ton shuttle element -- the aft skirt of a [solid rocket booster](#), is now on display outside Building 4205, Marshall's Propulsion Research & Development Laboratory -- affirmed the value of reviving the reliable old transportation hub. It wasn't the skirt's weight but its unusual size, more than 12 feet in diameter, which precluded easy delivery by road or other means.

"We ship a wide range of hardware and equipment of all weights and sizes, often with very different speed-of-delivery requirements," said Steve Doering, director of Marshall's Office of Center Operations. "Typically, we send by air for fast delivery, by roads if it has to go great distances, by water in the case of very large loads and by rail when loads are extremely heavy.

"It's critical we have the appropriate mode for any need," he said.

Redstone Army leaders and planners agree. "The new railhead revitalizes our transportation capabilities, and keeps pace with current industry standards," said Col. John Hamilton, Garrison commander at Redstone. "This joint capability positions all Redstone Arsenal tenants for continued growth and allows us to better support operational elements of our organizations."

The new railhead platform is designed to handle loads of approximately 300,000 pounds, plus loading/unloading equipment. That's ideal for delivery of hardware or vehicle elements of extraordinary size and weight, including those tied to testing and development of NASA's [Space Launch System](#), the nation's next heavy-lift launch vehicle.



The railhead is strategically positioned, leading directly to key Redstone Arsenal roads reinforced to handle the weight of heavy military and NASA hardware.

Whatever large-scale moves the future holds, the transport teams will be ready, said Marshall engineer Robert Rutherford, who leads the center's Transportation & Logistics Engineering Group.

"We always look for opportunities to better sustain our capabilities and to prepare for and quickly adapt to the needs of the future," he said.

Doering said Marshall's close relationship with its military neighbors can only strengthen that preparedness and adaptability.

"The railhead, like our joint Visitors Center and joint 9-1-1 call center, is a great example of our mutually beneficial relationship with the Army Garrison at Redstone," he said. "It saves costs and provides reliable, shared services for all our needs."

Redstone's Rail History

Rail transport was much more common on Redstone Arsenal years ago; old tracks still can be found hidden in overgrown fields all over the west side of the arsenal.

Busy rail lines once ran directly through the heart of what is now the Marshall Center. During World War II, trains chugged right up to Building 4471 on Mercury Road, between Rideout and Morris roads, where propulsive gas was loaded into artillery shells to support the war effort.

After NASA was founded and its mission identified, Marshall made frequent use of rail transportation throughout the 1960s, when the giant [Saturn V](#) and other rockets were built at the center and delivered to [NASA's Kennedy Space Center](#) for launch; and again in the 1970s when Marshall was responsible for managing and testing propulsion elements for the [Space Shuttle](#) Program, including the towering solid rocket boosters.

But as the center's mission evolved, use of the old railhead ceased around the turn of the century.

The Army continued to use the aging line until 2005 -- the same year the U.S. military conducted its most recent Base Realignment & Closure program, or BRAC. That period of change for the military brought more than 4,600 [Army](#) and [Missile Defense Agency](#) jobs to Redstone, along with the headquarters for the [Army Materiel Command](#) and the [U.S. Army Security Assistance Command](#).

Having a modern, working rail line will factor into decision-making for future BRACs, Rutherford said, potentially helping to bring additional new jobs and organizations to Redstone -- and it remains a critical capability for Marshall as well.

"Whether the technology and hardware we develop needs to be flown, sent by river barge or delivered by road or rail to our partners and customers around the country," he said, "we're most capable and cost-effective as a NASA field center when we have all four modes of transport in place."

Smith, an Analytical Services Inc. employee, supports the Office of Strategic Analysis & Communications.

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Message From Center Director Patrick Scheuermann

You should already be aware of plans for our test of Flexible Worksite Day at the Center on Nov. 23, the day after Thanksgiving.

Many buildings around Marshall will remain in weekend mode as we test our telework capabilities and implementation of lessons learned from the April 2011 tornadoes.

The Credit Union will be closed that day, as will cafeteria operations, although some dining areas will be available as alternate work locations.

Employees should not forward desk phones to an external number. Desk phones should be set up to go to a voicemail message that employees can either check remotely, or employees can change their voicemail to provide callers with an email address or government cell phone number for immediate assistance.

Building 4600 will be the centralized alternate workspace. These buildings will be open as usual:

- 4203
- 4207
- 4241
- 4249
- 4250
- 4312
- 4315
- 4483
- 4485
- 4487
- 4600
- 4607
- 4610
- 4619
- 4629
- 4631
- 4650
- 4654
- 4659
- 4663
- 4711
- 4723
- 4727

If your building is not on the "open" list, you should coordinate with your supervisor for an alternate worksite.

Mission Essential operations will continue as on a normal weekend.

For technical support, call 256-544-HELP, email nasa-esd@mail.nasa.gov or see <https://esd.nasa.gov>.

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NASA's Space Launch System Using Futuristic Technology to Build the Next Generation of Rockets

By Bill Hubscher



The Marshall Space Flight Center is using a manufacturing method called selective laser melting, or SLM, to create intricate metal parts for America's next heavy-lift rocket. Using this state-of-the-art technique will benefit the agency by saving millions in manufacturing costs.

Image left: Engineers in the Rapid Prototyping Department in Building 4707 at the Marshall Space Flight Center are learning how to operate the new Selective Laser Melting machine, which will be used to build parts for NASA's Space Launch System. (NASA/MSFC/Andy Hardin)

NASA is building the Space Launch System, or SLS -- a rocket managed at the Marshall Center and designed to take mankind, equipment and experiments beyond low Earth orbit to nearby asteroids and eventually to Mars.

SLM is similar to 3-D printing and is the future of manufacturing.

"Basically, this machine takes metal powder and uses a high-energy laser to melt it in a designed pattern," says Ken Cooper, advanced manufacturing team lead at the Marshall Center. "The laser will layer the melted dust to fuse whatever part we need from the ground up, creating intricate designs. The process produces parts with complex geometries and precise mechanical properties from a three-dimensional computer-aided design."

There are two benefits to this process, which are major considerations for the SLS Program: savings and safety.

"This process significantly reduces the manufacturing time required to produce parts from months to weeks or even days in some cases," said Andy Hardin, the integration hardware lead for the Engines Office in SLS. "It's a significant improvement in affordability, saving both time and money. Also, since we're not welding parts together, the parts are structurally stronger and more reliable, which creates an overall safer vehicle."

Image right: A test-design produced on the M2 Cusing Machine shows the capability of the new Selective Laser Machine recently installed in Building 4707 at the Marshall Center. While the pictured piece is only a demonstration and not a NASA-designed piece of hardware, the machine will soon be used to build parts for the Space Launch System. (Pen is included for scale.) (NASA/MSFC/Andy Hardin)



The emerging technology will build parts for America's next flagship rocket more affordably and efficiently, while increasing the safety of astronauts and the workforce. Some of the "printed" engine parts will be structurally tested and used in hot-fire tests of a J-2X engine later this year. The J-2X will be used as the upper stage engine for the SLS.

The goal is to use selective laser melting to manufacture parts on the first SLS test flight in 2017.

The agency procured the M2 Cusing machine, built by Concept Laser -- a division of Hoffman Innovation Group of Lichtenfels, Germany, to perform the selective-laser-manufacturing.

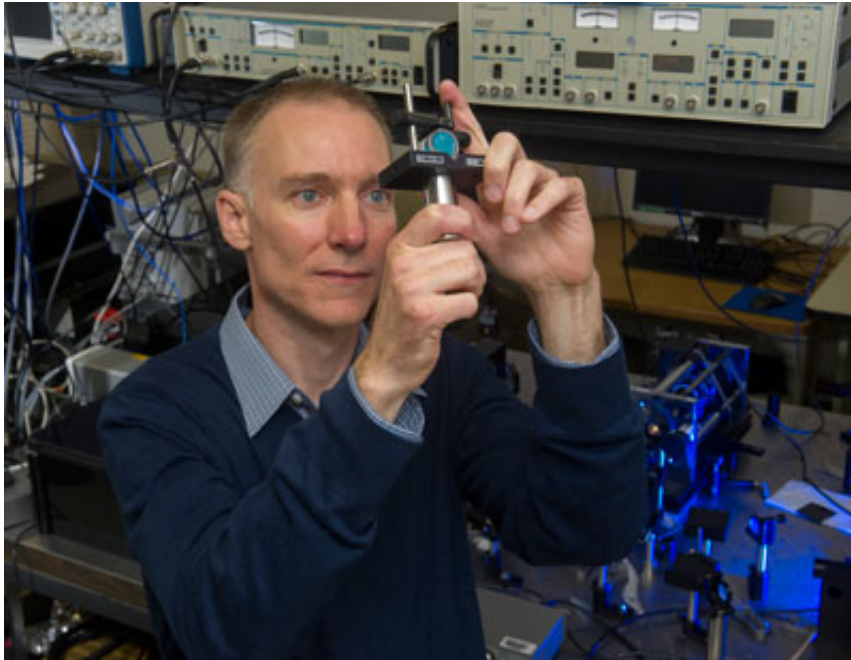
To learn more about the SLM machine and process and to see it in action, visit [here](#).

Hubscher, an Analytical Services, Inc. employee, supports the Office of Strategic Analysis and Communications.

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NASA-Led Research Coalition Developing Innovative Flight Navigation Technology

By Rick Smith



Marshall Space Flight Center physicist Dr. David Smith is leading a team of aerospace, military and academic researchers on a new NASA project that could dramatically improve in-flight navigation capabilities for space vehicles, military air and sea assets, and commercial vehicles.

Image left: Marshall optical physicist Dr. David Smith is leading development of advanced gyroscopes that could revolutionize in-flight navigation systems for space, air and sea vehicles. (NASA/MSFC/Emmett Given)

The three-year project, "Fast Light Optical Gyroscopes for Precision Inertial Navigation," includes researchers from the Marshall Center;

Northwestern University in Evanston, Ill.; and the U.S. Army [Aviation and Missile Research, Development and Engineering Center](#) at Redstone Arsenal. Smith is co-principal investigator of the project with Dr. Selim Shahriar, a professor of electrical engineering and computer science, as well as physics and astronomy at Northwestern University.

Their work is intended to enhance the performance of a vehicle's inertial guidance system by refining the optical gyroscopes that drive it. These highly sensitive gyroscopes, paired with accelerometers, measure a vehicle's attitude or orientation based on its angular or rotational momentum in flight, and track its velocity and acceleration to precisely determine its position, flight path and attitude, or its orientation relative to the direction of travel.

Gyroscope-based inertial guidance systems aren't a new invention; American rocketry pioneer Robert Goddard developed elementary gyroscopes for his launch tests in the early 1900s. The technology later was adapted to serve a range of high-tech spacecraft, guided missiles and commercial aviation.

But researchers supporting the new project say their sophisticated new optical gyroscopes could be at least 1,000 times more sensitive than current gyroscopes -- even in this initial prototype demonstration.

That's a critical leap forward as the nation plans new robotic and crewed missions into the solar system. Even the best modern spaceflight navigation systems can suffer from accumulated "dead reckoning" errors -- positioning miscalculations

that result when an absolute point of reference, or a fixed "landmark" in space, is not readily available. To correct for such errors, flight operations personnel must rely on backup technologies, including Earth-based systems such as a Global Positioning System, or GPS. But such measures often lack the precision or uninterrupted flow of data needed to make critical course adjustments or maneuvers. And once explorers' vehicles venture away from Earth, GPS becomes useless.

"The goal is to increase spacecraft autonomy," Smith said. "The farther out we go into the solar system, the more we need to be able to safely eliminate Earth from the navigation loop, relying instead on the accuracy of systems onboard the vehicle."

The team anticipates initial laboratory demonstration of the new gyroscopes by early 2014, with field tests in 2015.

The \$1.8 million project is one of five "game-changing" technology research efforts selected this fall by NASA's [Space Technology Program](#).

"This investment in the prototype is game-changing, and with it we expect to establish the feasibility of realizing large-area, fast-light optical gyroscopes that are as much as three orders of magnitude better than the best gyroscope out there today," said Steve Gaddis, program manager for the [Game Changing Development Program](#), which is led for the agency by NASA's [Langley Research Center](#).

Smith, an Analytical Services Inc. employee, supports the Office of Strategic Analysis & Communications.

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Expedition 31/32 Astronaut Joe Acaba Shares Mission Highlights; Visits with Payload Operations Center Team

Astronaut Joe Acaba, center, who lived and worked nearly four months as a flight engineer aboard the International Space Station, talks with current station astronauts from a console in the Marshall Space Flight Center's Payload Operations Center. During his visit to Marshall, Acaba shared highlights of his 123-day mission in space -- from May 15 through Sept. 17. Acaba supported the arrival of the first commercial resupply spacecraft -- SpaceX's Dragon, and he and his fellow crew members performed more than a hundred scientific investigations from 24 countries as part of the Expedition 31/32 crews. He said he wanted to come to the Marshall Center first after returning from space to thank the Payload Operations Center team, which he relied on to accomplish his research activities on the station. (NASA/MSFC/Emmett Given)





Linda Gibson, right, a payload planning manager with Teledyne Brown Engineering in NASA's Payload Operations Center at the Marshall Center, visits with Expedition 31/32 astronaut Joe Acaba during his visit to the center Nov. 7. Gibson was awarded the honor of hanging the Expeditions 31/32 mission plaques in the control room in Building 4663. It is a tradition for each mission plaque to be hung by a flight control team member who has made a significant contribution to the success of the expedition. Gibson was chosen because of the extra effort she exerted to coordinate the research activities for Acaba and his crewmates. (NASA/MSFC/Emmett Given)

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We Thank Our Veterans for Their Service

Marshall Space Flight Center senior management, along with Lt. Gen. Patricia McQuiston, U.S. Army Materiel Command's deputy commanding general, and NASA astronaut Joe Acaba, honored Marshall team members and retirees who serve or have served in the U.S. military. From left are McQuiston; Marshall systems engineer Jerry Shelby, a retired U.S. Marine Corps lance corporal; Marshall Center Director Patrick Scheuermann; and Acaba. McQuiston spoke at the event -- hosted by Marshall's Office of Diversity & Equal Opportunity -- thanking our veterans for the sacrifices they have made to keep our country free, and how important it is to impress on the younger generation how veterans should be respected for their service. To learn more about Shelby, read his [story](#) in this week's Marshall Star by Redstone Rocket writer Kari Hawkins. (NASA/MSFC/Emmett Given)



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Vietnam Veteran Overcomes Wounds from War

By Kari Hawkins



For more than 40 years, Jerry Shelby has lived with the wounds of a hero.

Image left: Jerry Shelby is a successful NASA engineer with a U.S. patent, despite the physical limitations caused by the loss of his left leg in Vietnam. (Redstone Rocket/Kari Hawkins)

Yet, this NASA engineer at the Marshall Space Flight Center is not one to attract attention to the war-inflicted disability that makes it difficult to climb stairs and walk long distances, not to mention impossible to run.

With age, however, the loss of Shelby's left leg is more noticeable, even though he wears the latest technology in prosthetics. In May, he was forced to start using a cane. "When I was young, I didn't need this," the 62-year-old veteran said. "I was strong. I had the strength of a Marine. I could get around."

And get around he did -- not letting his injuries steal away his drive to get an education, be successful in his career field, have a family and enjoy life. After Vietnam, Shelby went on to college, earning a degree in mechanical engineering, and later master's degrees in management and business administration. As a

NASA contractor in the late 1980s, he designed an engine protection system for recoverable rocket boosters that received a U.S. patent. Since 1990, he has worked as a NASA engineer on various space structures and programs.

Shelby was one of seven Purple Heart recipients inducted into the honor roll of the Military Order of the Purple Heart, George A. Rauh Chapter 2201, on Nov. 9.

Before he was a hero, Shelby was just a kid from New Orleans who moved to New York with his family. At 18, he dropped out of high school and joined the Marines in 1968.

It wasn't long before Shelby was shipped to the jungles of Vietnam to fight the Viet Cong. A lance corporal attached to the 1st Battalion, 26th Marines, he served as a member of the Fleet Marine Force in the protection of the Da-Nang, Vietnam, airfield in 1969. The unit was then reassigned to the U.S.S. Iwo Jima, where they were sent out on missions.

"On the morning I got injured, we were waiting in a rear area to go back to the Iwo Jima. Our captain told us to go out on an ambush at night in the jungle. We did and nothing happened. At 6:30 that morning, we came in and other Marines went in for the ambush."

As they were walking in, Shelby heard over the radio that another Marine platoon had gotten ambushed and needed help. The platoon's point man had gotten shot and others were injured. Shelby and his unit went into the jungle and pulled out the ambushed platoon. They then chased the Viet Cong through the woods.

Initially, two Marines -- Sonny and Rick -- were sent on the mission. But, Rick complained of being tired, so Shelby went in his place. "We were chasing them down a hill. Sonny yelled, 'Shelby, they're coming our way!' I turned to look for them and at that same time Sonny stepped on a mine." Flying shrapnel cut into the two Marines' bodies.

Sonny was seriously injured. Shelby lost his left leg above the knee, and was left with heavy scarring and muscle loss in his right arm. "At 19, I was home in New Orleans. I couldn't walk very well with my new wooden leg and I couldn't write very well because of the injuries to my right arm."

He took drafting classes, forcing himself to relearn how to use a pencil. He got his GED, then on the GI Bill, entered Southern University in Baton Rouge, La. His goal was to become a mechanical engineer.

After college, he went to work for IBM in Austin, Texas, then for General Dynamics in California in 1987. But his wife, a school teacher, didn't like California and she moved back to New Orleans. Shelby remained, working his obligatory year for the company and then making plans to return home.

"When the general manager found out I was leaving, he said the company didn't have a plant in New Orleans but that they did have a small office in Huntsville where engineers were building a liquid rocket booster."

To read more about the engine protection system that earned Shelby a U.S. patent, visit [here](#).

The move to Huntsville was good for Shelby. But, in 1990, with the cancellation of General Dynamics' NASA contract, Shelby found himself laid off. "I called the center director's office at Marshall and asked to talk with the center director (then Jack Lee). The secretary said he was walking out the door to go on a business trip. I asked if I could talk to him because I was a disabled veteran and needed a job. He got on the telephone and the next thing I knew I was at Marshall's Building 4200, and they were asking me when I wanted to start work."

Today, Shelby serves as Marshall's center export representative. In December, he plans to retire, giving him more time to enjoy family.

To read the full story, visit the Nov. 14 Rocket [here](#).

Hawkins is the assistant editor of the Redstone Rocket.

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Keith Hefner Named Space Launch System Program Planning and Control Office Manager

Keith Hefner has been named to the Senior Executive Service, or SES, position of manager of the Program Planning and Control Office for NASA's Space Launch System, or SLS, Program at the Marshall Space Flight Center. In this position, he will formulate and execute all SLS resource plans, laying the foundation for efficient and affordable management of the largest rocket ever built. The SES is the personnel system covering top managerial positions in approximately 75 federal agencies.

Hefner also will serve as liaison among the program, center and agency to develop resource requirements and implement strict budget and schedule controls to deliver a launch vehicle fulfilling NASA's performance requirements within the target schedule and budget.



Keith Hefner was named manager of the Program Planning and Control Office for

The SLS is an advanced, heavy-lift launch vehicle allowing science and human exploration beyond Earth's orbit. Managed by the Marshall Center, SLS will give the nation a safe, affordable and sustainable means of reaching beyond our current limits and open new doors of discovery from the unique vantage point of space.

Hefner previously served as manager of the Science and Space Technology Projects Office within the Science and Technology Office where he oversaw a portfolio of programs and projects, including an annual budget of approximately \$100 million and a combined workforce of over 300 civil service and contractor scientists, engineers and administrative staff. He also had responsibility for the Marshall Center's X-Ray and Cryogenic Facility, currently being used to test major James Webb Space Telescope hardware elements.

Starting in 2002 until his appointment to SLS, Hefner served as the Chandra X-ray Observatory Program manager, responsible for planning, budgeting and managing Chandra operations. From 2006 to 2011, in addition to his Chandra responsibilities, he led the new Space Systems Programs and Projects Office within the Science and Mission Systems Office, overseeing the planning, and scheduling resources, support requirements, management systems and concepts required for managing the Chandra Program; as well as the Hinode Project -- an international collaboration with the Japanese Space Agency; the James Webb Telescope test activities; and the Gamma-ray Burst Monitor Project.

In 1986, he was assigned to the Observatory Projects Office, where he specialized in project and resource management with the Chandra and Hubble Space Telescope programs. He served as the Chandra Program Control lead throughout the development phase of the program and into the early operations phase.

Hefner joined NASA in 1985 and was assigned to the Program Development Directorate as a program control engineer trainee. After completing this training program, he was assigned to the Observatory Projects Office where he initially supported the Hubble Space Telescope Program until its launch in 1990.

Hefner has distinguished himself throughout NASA and other federal agencies as a subject-matter expert in financial management and program and project management. He possesses extensive experience developing life cycle cost estimates and detailed phasing plans and has formulated, executed and overseen budgets ranging from small activities to major programs in excess of \$3 billion. Hefner routinely provided programmatic advice and guidance and serves as an expert consultant on such projects and programs as Chandra and the James Webb Space Telescope.

For his service to the space program, Hefner has received numerous awards, including the NASA Exceptional Service Medal, a Space Flight Awareness Award, the Silver Snoopy Award, multiple Center Director Commendations and numerous group achievement awards.

A native of Boaz, Hefner attended Snead State Community College in Boaz and graduated in 1984 from the University of Alabama in Tuscaloosa with a bachelor's degree in industrial engineering. He resides in Huntsville.

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Pam Caruso Named Marshall Center Ombudsman



Pam Caruso (NASA/MSFC)

Pam Caruso, technical assistant to the director of the Engineering Directorate, has been appointed as an ombudsman for the Marshall Space Flight Center.

NASA offers a number of quality programs that enable its employees to resolve workforce issues. Many of these services -- such as the NASA Grievance System, Alternative Dispute Resolution and Equal Employment Opportunity Program -- entail procedures that are necessarily structured and formal. The 2003 Columbia Accident Investigation Board Report identified a need to supplement these programs with an informal mechanism for addressing issues and concerns related to safety, organizational performance or mission success. This recommendation resulted in the creation in 2005 of

the NASA Ombuds Program.

The NASA Ombuds Program serves the entire NASA workforce, both civil servants and onsite contractors. It provides employees with an informal, Independent, confidential and neutral means of communicating and facilitating the resolution of safety, organizational performance and mission-related issues without fear of retribution.

With your permission, an ombudsman can act as a link, when appropriate, between you and management to facilitate problem resolution. At the discretion of the ombuds and in keeping with the confidentiality principle, an issue can be elevated to the center director.

The preferred method of contacting an ombudsman is a personal visit or by phone. Sending an email message is also a contact method, but employees using that mode should be aware of its potential for compromising confidentiality.

A detailed description of the Ombuds Programs can be found in NPD 2025.1A To find out more information about alternative avenues for resolving issues, Marshall team members can visit the ["Resolving Issues"](#) site on Inside Marshall.

Find this article at:

<http://www.nasa.gov/centers/marshall/about/star/index.html>